

REMARKS

This paper is being provided in response to the Office Action dated January 11, 2006, for the above-referenced application. In this response, Applicants have amended Claim 16 to clarify that which Applicants consider to be the invention. Applicants respectfully submit that the amendments to the claim are fully supported by the originally-filed specification.

Applicants gratefully acknowledge the allowance of Claims 4-7 and 12-15.

The rejection of Claim 16 under 35 U.S.C. 103(a) as obvious over Momoo et al., U.S. Patent No. 5,946,137 (hereinafter "Momoo") in view of Ohnishi et al., U.S. Patent No. 6,125,087 (hereinafter "Ohnishi") is hereby traversed and reconsideration thereof is respectfully requested.

Claim 16, as amended herein, recites an optical head. A light source emits a light beam to be irradiated to an optical recording medium as an incident light beam. A hologram element receives a reflected light beam generated by reflection of the incident light beam on the medium to generate at least two diffracted light beams for focusing error detection and at least two diffracted light beams for tracking error detection. An optical detector that detects the at least two diffracted light beams for focusing error detection and the at least two diffracted light beams for tracking error detection. The hologram element includes at least first and second diffraction gratings having different grating patterns. One of the grating patterns is arc-shaped and has an offset center with respect to another of said grating patterns, and the other of the grating patterns is linear. The first diffraction grating is disposed on a surface of the element and the second diffraction grating is disposed on an opposite surface thereof.

Momoo relates to the optical constitution of an optical head in an optical information processing unit for recording, reproducing, and erasing the information signals such as data, image and sound. (Col. 1, Lines 6-9). Momoo's Figure 1 includes a diffraction element 5. On the front and the reverse surfaces of diffraction element 5 are a first diffraction grating 5a and a second diffraction grating 5b. (Col. 2, Lines 38-52; Figure 1). Figure 2(a) shows a first diffraction grating 5a and a second diffraction grating 5(b). Their directions are approximately rectangular to each other while the radius of curvature and the spacing are usually different depending on the spot diameter and spot location on the photosensor. (Col. 2, Line 65– Col. 3, Line 4; Figures 2(a) and 2(b)).

Ohnishi is cited on page 3 of the Office Action as support for disclosing a hologram element having curved grating grooves as a diffraction grating to provide an optical pickup to enhance light availability. (Col. 17, Lines 18-22).

Claim 16, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest an optical head, comprising: ... a hologram element that receives a reflected light beam generated by reflection of said incident light beam on said medium to generate at least two diffracted light beams for focusing error detection and at least two diffracted light beams for tracking error detection; ... wherein said hologram element includes at least first and second diffraction gratings, said gratings having different grating patterns and one of said grating patterns being arc-shaped and

having an offset center with respect to another of said grating patterns, and the other of said grating patterns being linear, and wherein said first diffraction grating is disposed on a surface of said element and said second diffraction grating is disposed on an opposite surface thereof, as set forth in Claim 16. Momoo discloses using two diffraction gratings on front and reverse surfaces of a diffraction element, but appears to neither disclose nor suggest including a diffraction element in a hologram element. Furthermore, Momoo discloses use of grating patterns which are curved (e.g., See Figures 2(a) and 2(b) of Momoo), but appears to neither disclose nor suggest a diffraction element having a first grating on a first surface and a second grating on an opposite surface in which one of the grating patterns is linear and the other is arc-shaped. Ohnishi appears to neither disclose nor suggest use of two diffraction gratings as recited in Applicant's amended Claim 16. Ohnishi discloses use of curved grating grooves but neither discloses nor suggests an arrangement in which a diffraction element has a first grating on a first surface and a second grating on an opposite surface in which one of the grating patterns is linear and the other is arc-shaped.

In view of the foregoing, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claim 17 under 35 U.S.C. 103(a) as being unpatentable over Momoo in view of Ohnishi and further in view of Kim et al., U.S. Patent No. 5,374,819 (hereinafter "Kim") and Fukakusa et al., U.S. Patent No. 5,678,155 (hereinafter "Fukakusa") is hereby traversed and reconsideration thereof is respectfully requested.

Claim 17 depends from Claim 16, discussed above.

Momoo and Ohnishi are discussed above.

Kim is cited on page 3 of the Office Action as support for disclosing that at least the light source and the optical detector are located in a package having a positioning mechanism. (See Col. 4, Lines 28-38; Figure 1, elements 100, 130 and 400).

Fukakusa is cited on pages 3-4 of the Office Action as support for disclosing an optical head having at least a light source and an optical detector located in a package having a positioning mechanism wherein the package is mounted on a base using said positioning mechanism. (Figure 7; Col. 8, Lines 15-47).

Claim 16, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest an optical head, comprising: ... a hologram element that receives a reflected light beam generated by reflection of said incident light beam on said medium to generate at least two diffracted light beams for focusing error detection and at least two diffracted light beams for tracking error detection; ... wherein said hologram element includes at least first and second diffraction gratings, said gratings having different grating patterns and one of said grating patterns being arc-shaped and having an offset center with respect to another of said grating patterns, and the other of said grating patterns being linear, and wherein said first diffraction grating is disposed on a surface of said element and said second diffraction grating is disposed on an opposite surface thereof, as

set forth in Claim 16. For reasons set forth above, the foregoing recited elements of Claim 16 are neither disclosed nor suggested by Momoo and Ohnishi.

Kim discloses use of a polarization film 821 (Col. 5, Lines 51-56), but appears to neither disclose nor suggest a hologram element that includes at least first and second diffraction gratings wherein one of the grating patterns is arc-shaped and having an offset center with respect to another of the grating patterns, and the other of the grating patterns being linear, and wherein the first diffraction grating is disposed on a surface of the element and the second diffraction grating is disposed on an opposite surface thereof, as set forth in Applicant's amended Claim 16.

Fukakusa discloses a diffraction grating lens which is formed in the condenser unit 11 and which is nearly axis symmetrical and is patterned so that the pitch may be smaller in the outer circumference. (Col. 5, Lines 40-46). However, Fukakusa neither discloses nor suggests a hologram element that includes at least first and second diffraction gratings wherein one of the grating patterns is arc-shaped and having an offset center with respect to another of the grating patterns, and the other of the grating patterns being linear, and wherein the first diffraction grating is disposed on a surface of the element and the second diffraction grating is disposed on an opposite surface thereof, as set forth in Applicant's amended Claim 16.

Thus, combining Momoo and Ohnishi with Kim and Fukakusa does not overcome the deficiencies of Momoo and Ohnishi with respect to Applicant's Claim 16 and thus neither

disclose nor suggest the features recited in claim 17, which depends from claim 16.

Accordingly, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claims 18-20 under 35 U.S.C. 103(a) as being unpatentable over Momoo, Ohnishi, Kim and Fukakusa, and further in view of Maeda, U.S. Patent No. 5,956,302 (hereinafter "Maeda") is hereby traversed and reconsideration thereof is respectfully requested.

Claims 18-20 depend from Claim 16, discussed above.

Momoo, Ohnishi, Kim and Fukakusa are discussed above.

Maeda is cited on page 4 of the Office Action as support for disclosing an optical head that includes a light source located in a plastic package. (Col. 24, Lines 38-40).

Claim 16, as amended herein, is neither disclosed nor suggested by the references, taken separately or in combination, in that the references neither disclose nor suggest an optical head, comprising: ... a hologram element that receives a reflected light beam generated by reflection of said incident light beam on said medium to generate at least two diffracted light beams for focusing error detection and at least two diffracted light beams for tracking error detection; ... wherein said hologram element includes at least first and second diffraction gratings, said gratings having different grating patterns and one of said grating patterns being arc-shaped and having an offset center with respect to another of said grating patterns, and the other of said grating patterns being linear, and wherein said first diffraction grating is disposed on a surface of

said element and said second diffraction grating is disposed on an opposite surface thereof, as set forth in Claim 16. For reasons set forth above, Momoo, Ohnishi, Kim and Fukakusa neither disclose nor suggest the foregoing recited features of Claim 16.

Maeda discloses use of a double diffraction grating 7 (e.g., Figure 2; Col. 12, Lines 33-35; Col. 15, Line 19). Maeda illustrates that a diffraction grating may be linear (e.g., See Figure 9a) or divided into 3 parts (e.g., Figure 16a). However, Maeda appears to neither disclose nor suggest a hologram element that includes at least first and second diffraction gratings wherein one of the grating patterns is arc-shaped and having an offset center with respect to another of the grating patterns, and the other of the grating patterns being linear, and wherein the first diffraction grating is disposed on a surface of the element and the second diffraction grating is disposed on an opposite surface thereof, as set forth in Applicant's amended Claim 16.

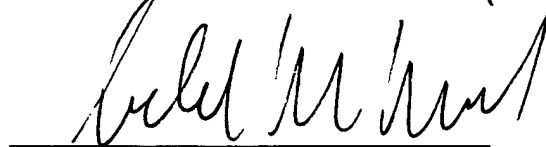
Thus, combining Momoo, Ohnishi, Kim, and Fukakusa with Maeda does not overcome the deficiencies of Momoo, Ohnishi, Kim, and Fukakusa with respect to Applicant's Claim 16 and therefore do not render unpatentable claims 18-20, which depend from claim 16. Accordingly, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

The rejection of Claim 21 as being unpatentable under 35 U.S.C. 103(a) over Momoo in view of Ohnishi and Fukakusa is hereby traversed and reconsideration thereof is respectfully requested.

Claim 21 depends from Claim 16, discussed above. For reasons set forth above in connection with another rejection, Momoo, Ohshini, Kim and Fukakusa do not disclose or suggest features of Claim 16. Thus Momoo, Ohshini, and Fukakusa also neither disclose nor suggest features Claim 21. Accordingly, Applicant respectfully requests that the rejection be reconsidered and withdrawn.

Based on the above, Applicant respectfully requests that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at (508) 898-8603.

Respectfully submitted,
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